Reported Preexposure Prophylaxis (PrEP) Use Among Male Sex Partners of HIV-Positive Men—2016–2018

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Abstract

Objective: To estimate the proportion of U.S. HIV-positive men who report a male HIV-negative/unknown status (HIV-discordant) sexual partner taking PrEP, and the use of multiple HIV prevention strategies within partnerships.

Design: The Medical Monitoring Project is a complex sample survey of U.S. adults with diagnosed HIV.

Methods: We used data collected during June 2016—May 2018 among sexually-active HIV-positive men who had ≥1 HIV-discordant male partner (N=1,871) to estimate the weighted prevalence of reporting ≥1 partner taking PrEP. Among HIV-discordant partnerships (N=4,029), we estimated PrEP use, viral suppression among HIV-positive partners, and condomless anal sex. We evaluated significant (p<0.05) differences between groups using prevalence ratios with predicted marginal means.

Results: Twenty-eight percent of sexually-active HIV-positive MSM reported ≥1 HIV-discordant male partner taking PrEP. Twenty percent of HIV-discordant partners were reported to be taking PrEP; 73% were taking PrEP or the HIV-positive partner was virally suppressed. PrEP use was lower among black and Hispanic partners compared with white partners (12% and 19% vs. 27%). Fewer black than white MSM were in partnerships in which PrEP was used or the HIV-positive partner had sustained viral suppression (69% vs. 77%). Condomless anal intercourse was more prevalent in partnerships involving PrEP use and in partnerships involving either PrEP use or sustained viral suppression among the HIV-positive partner.

Conclusions: PrEP use was reported among 1 in 5 partners, with disparities between black and white partners. Increasing PrEP use and decreasing racial/ethnic disparities could reduce disparities in HIV incidence and help end the U.S. HIV epidemic.

Keywords

human immunodeficiency virus; HIV; pre-exposure prophylaxis; PrEP; men who have sex with men

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Background

Use of antiretroviral medications as pre-exposure prophylaxis (PrEP) is highly effective at preventing HIV acquisition [1] and is a key component of the U.S. Ending the HIV Epidemic (EHE) initiative [2]. PrEP is particularly critical for highly affected populations, such as black or African American (hereafter referred to as black) men who have sex with men (MSM) [3]. Disparities in PrEP use have been documented [4–7], but we lack population-based estimates of PrEP use among people in HIV-discordant sexual partnerships, a group for whom PrEP is recommended [8].

To fill this gap, we analyzed reported PrEP use among HIV-discordant male sexual partners of U.S. HIV-positive men using detailed individual- and partnership-level data that allowed us to examine reported partner PrEP use overall and in conjunction with other HIV prevention modalities—such as condom use and viral suppression—which are often not available in other studies of PrEP use.

Methods

Detailed Medical Monitoring Project (MMP) methods are reported elsewhere [9, 10], but briefly, MMP first sampled 23 jurisdictions from all U.S. states, the District of Columbia, and Puerto Rico. Second, simple random samples of adults with diagnosed HIV were drawn for each participating state/territory from the National HIV Surveillance System (NHSS), a census of U.S. persons with diagnosed HIV. We combined data from 2 annual data collection cycles; data were collected via phone or face-to-face interviews and medical record abstractions during 6/2016–5/2018. State/territory response rates were 100% and ranged from 44–46% at the person level. Data were weighted based on probabilities of selection and adjusted for non-response [11] and then post-stratified to NHSS population totals by sex, race/ethnicity, and age. Informed consent was obtained from all participants.

MMP participants self-reported their anal sex partnerships over the past 12 months, including information about partners' age, gender and race/ethnicity and the use of condoms and PrEP within partnerships. PrEP use was assessed among the most recent 5 HIV-negative partners; unknown HIV status partners were categorized as not taking PrEP. Among sexually-active HIV-positive MSM who had at least one HIV negative or unknown HIV status (HIV-discordant) male partner (N=1,871), we estimated the weighted prevalence and associated 95% confidence interval (CI) of reporting at least one HIV-discordant partner taking PrEP. Among the HIV-discordant male partnerships reported by these men (N=4,029), we calculated 1) the prevalence of partnerships with reported PrEP use and 2) the prevalence of partnerships with reported PrEP use and/or sustained viral suppression among the HIV-positive partner. We estimated factors independently associated with PrEP use using multivariable logistic regression with $P < 0.10$ inclusion and retention criteria. We

also estimated the prevalence of condomless anal sex among 1) partnerships with reported PrEP use and 2) partnerships with reported PrEP use and/or sustained viral suppression among the HIV-positive partner. We evaluated significant ($p<0.05$) differences between groups using prevalence ratios with predicted marginal means. All analyses accounted for the complex sample design and weights.

Results

Among HIV-positive MSM with HIV- discordant male partners, 28% reported having at least 1 male partner taking PrEP (Table 1). Non-Hispanic black MSM were less likely than Hispanic/Latino or non-Hispanic white MSM to report having a partner taking PrEP (22% vs. 31% and 31%). Reporting a partner taking PrEP was associated with the HIV-positive person being younger, not being in poverty, and having private insurance. Reporting a partner taking PrEP was associated with having more partners but not significantly associated with the HIV-positive person having sustained viral suppression or being retained in HIV care. Factors independently associated with partner PrEP use were age, race/ethnicity, poverty, private health insurance, length of time since HIV diagnosis, and having only 1 partner.

Among all HIV-discordant male partnerships (Table 2), 20% of partners were reported to be taking PrEP. Overall, 73% were either taking PrEP or were the partner of an HIV-positive person who had sustained viral suppression. Reported PrEP use was significantly higher among younger partners and in partnerships with a higher level of commitment. Reported PrEP use was lower among black and Hispanic partners compared with white partners (12% and 19% vs. 27%, PR=0.44 and PR=0.69, respectively). Reported PrEP use was not associated with the viral status of the HIV-positive person. Factors independently associated with partner PrEP use were age, race/ethnicity, and level of commitment. A significantly lower proportion of black MSM, compared with white MSM, were reported to be either taking PrEP or the partner of a person who had sustained viral suppression (69% vs. 77%, PR=1.37).

Condomless anal intercourse was more likely in partnerships with reported PrEP use (64% [95% CI: 58–69] vs. 40% [95% CI: 36–43], PR=1.61 [95% CI: 1.45–1.79, *P*<0.001]) and also more common in partnerships in which either PrEP was used by the HIV-discordant partner or the HIV-positive partner had sustained viral suppression (47% [95% CI: 43–52] vs. 36% [95% CI: 30–43], PR=1.30 [95% CI: 1.07–1.59, *P*=0.005], results not reported in tables). Condomless anal intercourse with the HIV-negative person as the receptive partner was over twice as likely in partnerships with reported PrEP use (36% [95% CI: 31–42] vs. 16% [95% CI: 14–18], PR=2.29 [95% CI: 1.91–2.75, *P*<0.001]) and also more common in partnerships in which either PrEP was used by the HIV-discordant partner or the HIV-positive partner had sustained viral suppression (23% [95% CI: 19–26] vs. 13% [95% CI: 9–17], PR=1.72 [95% CI: 1.19–2.49, *P*=0.003]).

Discussion

During 2016—2018, an estimated 28% of U.S. HIV-positive MSM in HIV-discordant sexual partnerships reported partner PrEP use among their male partners. A strength of this analysis is its use of population-based data from a relatively high number of geographically-diverse states, which have been weighted to estimate national prevalence.

Reported partner PrEP use was significantly lower among black compared with white or Hispanic/Latino HIV-positive MSM with HIV-discordant male partners. HIV care providers may be able to address racial/ethnic disparities by educating all patients about PrEP, encouraging patients to educate their sex partners about PrEP, and providing access to or referrals for PrEP for their patients' HIV-negative partners. These efforts may need to be prioritized among providers' black MSM patients. Further, efforts are needed to increase provider awareness of, willingness to prescribe, and prescription of PrEP, particularly among non-infectious disease specialists and those practicing in the U.S. South [12].

Reported partner PrEP use was not higher among MSM who were not virally suppressed—a key group for whom partner PrEP access should be increased. PrEP education and referrals could be incorporated into Data to Care [13] and other HIV care engagement outreach activities that target persons who are not virally suppressed or have disengaged from HIV care. Coordination between Data to Care and HIV partner services [14] may facilitate awareness and uptake of PrEP for partners of HIV positive persons who are not be virally suppressed. Integrating PrEP referrals into partner services has been found to be effective [15, 16].

We found relatively low reported PrEP use among HIV-discordant male partners of HIV-positive MSM (20%), although the prevalence was higher than estimates using a shorter timeframe [17]. However, while we found that 80% of partners of HIV-positive MSM were not taking PrEP, only 27% were not taking PrEP when the HIV-positive person was not virally suppressed. This illustrates the utility of comprehensive examination of multiple HIV prevention strategies to more accurately estimate HIV acquisition risk.

HIV-positive MSM reported that black and Hispanic HIV-discordant partners were less likely to take PrEP than white partners. Although other studies have found racial disparities in PrEP use among MSM [4–7], this is the first to our knowledge to confirm and quantify these disparities among reported partners of HIV-positive MSM, a group for whom PrEP is recommended [8]. Further, we found that a higher proportion of black MSM compared with white were not taking PrEP and were the partners of HIV-positive MSM who are not virally suppressed, perhaps contributing to higher HIV incidence in this group [18]. Our findings confirm that efforts to increase PrEP use among black MSM should be prioritized.

Studies have found that need for daily adherence may be a barrier to PrEP uptake among black MSM [19, 20]. Alternate strategies such as injectable or on-demand PrEP could increase PrEP uptake among these men [21]. Cost and side effects can be barriers to PrEP uptake, while convenience and accessibility of PrEP access can be facilitators [20]. PrEP providers should proactively assess and address concerns about side effects with patients; medication concerns have also been cited as barriers to entering HIV care among persons

with HIV [22]. Efforts to increase the availability of PrEP in convenient settings should continue, such as California's recent legislation decreasing barriers to initiating PrEP [23]. These actions can reduce racial disparities in PrEP use, which is essential for reducing racial disparities in HIV incidence [24, 25].

Condomless anal intercourse was associated with PrEP use. While increased condomless sex could be a barrier to PrEP uptake [20] and PrEP may increase "risk compensation" [26, 27], our findings suggest that PrEP use was higher in partnerships where there was risk of HIV transmission, i.e., when partners engaged in condomless anal intercourse without sustained viral suppression. While sex without condoms may be a facilitator of PrEP use [19], this should be balanced with assessment of STD risk, which has been increasing among MSM [28].

Limitations

PrEP use and partner characteristics were reported by the HIV positive person and subject to measurement error. PrEP use was only assessed among the most recent 5 partners. However, only 24% of MSM reported more than 5 partners and, among these, almost half reported PrEP use among one of their most recent 5 partners. We also assumed that partners with unknown HIV status and those with unknown PrEP use were not taking PrEP. While this is not ideal, to assume that all were taking PrEP would be an overestimate and to exclude them would bias the results by excluding more casual sexual partnerships. A sensitivity analysis found that limiting the analysis to only persons with known HIV status partners resulted in no substantive changes with one exception, reported PrEP use was no longer significantly lower among Hispanic partners compared with white partners. Therefore, our finding that PrEP use was lower among Hispanic partners should be interpreted with caution. In addition, this analysis does not assess PrEP use among partners of MSM with undiagnosed HIV and does not account for any temporal trends in PrEP use. Due to the limitations in our measures, our estimates of PrEP use should be considered a lower bound.

PrEP use was reported among 1 in 5 partners, with disparities between black and white partners. Assessing the use of multiple prevention strategies among a population-based sample in a real-world setting allows for a more comprehensive assessment of risk. Increasing PrEP use and decreasing racial/ethnic disparities could reduce disparities in HIV incidence and help end the U.S. HIV epidemic. [24, 25, 29].

Acknowledgements:

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Table 1.

Selected characteristics of sexually-active HIV-positive men with HIV-negative/unknown status male partners, by partner PrEP use (N=1,871)—United States, 2016–2018

Characteristics	At least one male partner taking PrEP (n=571)		No male partner taking PrEP (n=1300)		Prevalence Ratio (95% CI)	T-test P-value	Adjusted Prevalence Ratio (95% CI)	T-test P-value
	n[a]	Row % (95% CI)[b]	n[a]	Row % (95% CI)[b]				
Total	571	28.4 (25.7–31.0)	1,300	71.6 (69.0–74.3)				
Sociodemographics								
Age (years)								
18–29	122	35.8 (30.1–41.4)	191	64.2 (58.6–69.9)	2.01 (1.61–2.52)	<.0001	1.96 (1.48–2.59)	<.0001
30–49	325	32.6 (28.9–36.3)	616	67.4 (63.7–71.1)	1.84 (1.53–2.21)	<.0001	1.77 (1.44–2.17)	<.0001
50+	124	17.8 (14.5–21.0)	493	82.2 (79.0–85.5)	Reference		Reference	
Race/Ethnicity								
Black, non-Hispanic	120	22.1 (18.6–25.6)	406	77.9 (74.4–81.4)	0.72 (0.58–0.90)	0.003	0.62 (0.50–0.78)	<.0001
Hispanic	161	30.7 (25.2–36.3)	335	69.3 (63.7–74.8)	1.00 (0.79–1.28)	0.981	0.94 (0.75–1.18)	0.588
White, non-Hispanic	247	30.6 (26.5–34.7)	467	69.4 (65.3–73.5)	Reference		Reference	
Other[c]	43	30.0 (20.1–40.0)	92	70.0 (60.0–79.9)	0.98 (0.70–1.38)	0.912	0.94 (0.68–1.30)	0.703
Gay or bisexual identity								
Yes	541	28.5 (25.8–31.2)	1,205	71.5 (68.8–74.2)	1.05 (0.75–1.47)	0.765		
No	29	27.1 (18.6–35.6)	90	72.9 (64.4–81.4)	Reference			
Education attainment								
<=High school diploma or GED	110	22.4 (18.1–26.7)	352	77.6 (73.3–81.9)	Reference		Reference	
>High School	461	30.4 (27.0–33.8)	948	69.6 (66.2–73.0)	1.36 (1.07–1.72)	0.010	1.23 (0.99–1.52)	0.062
At or below household poverty level [d]								
Yes	96	20.6 (16.2–25.0)	321	79.4 (75.0–83.8)	Reference		Reference	
No	449	31.0 (28.2–33.9)	907	69.0 (66.1–71.8)	1.51 (1.21–1.87)	0.0001	1.25 (1.00–1.57)	0.044
Health coverage or coverage for medications								
Any private insurance	359	34.2 (30.4–38.0)	619	65.8 (62.0–69.6)	1.66 (1.17–2.34)	0.002	1.69 (1.18–2.44)	0.002
Public insurance only	175	23.1 (19.7–26.5)	526	76.9 (73.5–80.3)	1.12 (0.79–1.59)	0.522	1.38 (0.96–1.99)	0.073

Characteristics	At least one male partner taking PrEP (n=571)		No male partner taking PrEP (n=1300)		Prevalence Ratio (95% CI)	T-test P-value	Adjusted Prevalence Ratio (95% CI)	T-test P-value
	n[a]	Row % (95% CI)[b]	n[a]	Row % (95% CI)[b]				
Only Ryan White HIV/AIDS Program coverage or uninsured	37	20.6 (13.9–27.3)	143	79.4 (72.7–86.1)	Reference		Reference	
Homeless [e]								
Yes	47	32.2 (22.6–41.8)	100	67.8 (58.2–77.4)	1.15 (0.86–1.53)	0.361		
No	524	28.0 (25.5–30.6)	1,200	72.0 (69.4–74.5)	Reference			
Incarcerated								
Yes	19	24.0 (12.4–35.6)	56	76.0 (64.4–87.6)	1.19 (0.74–1.90)	0.460		
No	551	28.5 (25.9–31.1)	1,244	71.5 (68.9–74.1)	Reference			
Length of time since HIV diagnosis								
<5 years	178	37.5 (31.6–43.3)	264	62.5 (56.7–68.4)	1.80 (1.45–2.23)	<.0001	1.35 (1.07–1.72)	0.013
5–9 years	180	33.3 (28.3–38.3)	335	66.7 (61.7–71.7)	1.60 (1.33–1.92)	<.0001	1.27 (1.03–1.55)	0.022
10+ years	212	20.8 (17.7–23.9)	694	79.2 (76.1–82.3)	Reference		Reference	
HIV disease stage 3 [f]								
Yes	188	22.1 (18.5–25.8)	586	77.9 (74.2–81.5)	Reference			
No	383	32.5 (28.9–36.2)	710	67.5 (63.8–71.1)	1.47 (1.21–1.78)	0.0001		
Substance use								
Binge drinking in past 30 days [g]								
Yes	184	32.9 (27.8–38.0)	313	67.1 (62.0–72.2)	1.24 (1.02–1.50)	0.031		
No	383	26.5 (23.4–29.6)	980	73.5 (70.4–76.6)	Reference			
Drug use								
Yes	306	32.0 (28.7–35.2)	579	68.0 (64.8–71.3)	1.27 (1.07–1.50)	0.007		
No	263	25.3 (21.6–28.9)	717	74.7 (71.1–78.4)	Reference			
Sexual behavior								
Only 1 partner								
Yes	99	16.8 (12.8–20.8)	427	83.2 (79.2–87.2)	Reference		Reference	
No	472	33.3 (30.0–36.5)	873	66.7 (63.5–70.0)	1.98 (1.53–2.56)	<.0001	1.82 (1.41–2.34)	<.0001
Over 5 partners								
Yes	223	45.1 (39.7–50.4)	259	54.9 (49.6–60.3)	1.94 (1.65–2.30)	<.0001		
No	348	23.2 (20.4–25.9)	1,041	76.8 (74.1–79.6)	Reference			

Characteristics	At least one male partner taking PrEP (n=571)		No male partner taking PrEP (n=1300)		Prevalence Ratio (95% CI)	T-test P-value	Adjusted Prevalence Ratio (95% CI)	T-test P-value
	n[a]	Row % (95% CI)[b]	n[a]	Row % (95% CI)[b]				
No. of partners [Range]	571	4 [1–360]	1,300	2 [1–360]				
No. of male partners [Range]	571	3 [1–360]	1,300	2 [0–350]				
No. other of partners [Range]	571	0 [0–6]	1,300	0 [0–60]				
Clinical characteristics								
Prescribed antiretroviral therapy [h]								
Yes	507	28.9 (25.5–32.3)	1,148	71.1 (67.7–74.5)	1.13 (0.80–1.59)	0.484		
No	64	25.6 (18.5–32.8)	152	74.4 (67.2–81.5)	Reference			
Sustained viral supression [hi]								
Yes	417	29.6 (26.2–32.9)	919	70.4 (67.1–73.8)	1.14 (0.93–1.39)	0.218		
No	154	26.0 (21.6–30.4)	381	74.0 (69.6–78.4)	Reference			
Retained in care [hj]								
Yes	467	29.0 (25.6–32.4)	1,058	71.0 (67.6–74.4)	1.11 (0.88–1.40)	0.375		
No	88	26.1 (21.1–31.1)	208	73.9 (68.9–78.9)	Reference			

Notes: HIV, human immunodeficiency virus; PrEP, preexposure prophylaxis; CI, confidence interval; all variables measured by self-report over the past 12 months except where otherwise noted.

[a] Numbers are unweighted

[b] Percentages and corresponding CIs are weighted percentages

[c] Includes American Indian/Alaska Native, Asian, Native Hawaiian/Other Pacific Islander, or multiple races

[d] Poverty guidelines as defined by the U.S. Department of Health and Human Services; more information regarding the HHS poverty guidelines can be found at http://aspe.hhs.gov/frequently-asked-questions-related-poverty-guidelines-and-poverty.

[e] Defined as living on the street, in a shelter, in a single room occupancy hotel, or in a car

[f] As defined by the Centers for Disease Control and Prevention's Revised Surveillance Case Definition for HIV Infection (https://www.cdc.gov/mmwr/pdf/rr/rr6303.pdf) and measured by the National HIV Surveillance System

[g] Defined as having 5 alcoholic beverages in a single sitting (4 for women) on at least 1 day during the past 30 days

[h] Abstracted from medical record

[i] All viral loads in past 12 months undetectable or <= 200 copies/mL

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*j*Received at least two elements of outpatient HIV care at least 90 days apart during the past 12 months; outpatient HIV care was measured through medical record abstraction and defined as any documentation of the following: encounter with an HIV care provider (could also be self-reported), viral load test result, CD4 test result, HIV resistance test or tropism assay, ART prescription, PCP prophylaxis, or MAC prophylaxis

Table 2.

Selected characteristics of partnerships among sexually-active HIV-positive men with negative or unknown HIV status male partners, by partner PrEP use and sustained viral suppression (N=4029)—United States, 2016–2018

Characteristics	Partnerships with PrEP use (n=845)		Partnerships with no PrEP use (n=3184)		Prevalence Ratio (95% CI)	T-test P-value	Adjusted Prevalence Ratio (95% CI)	T-test P-value	Partnerships with PrEP use or sustained viral suppression (n=3147)		Partnerships with no PrEP use and without sustained viral suppression (n=882)		Prevalence Ratio (95% CI)	T-test P-value
	n [a]	Row % (95% CI) [b]	n [a]	Row % (95% CI) [b]					n [a]	Row % (95% CI) [b]	n [a]	Row % (95% CI) [b]		
Total	845	19.8 (17.6–22.0)	3,184	80.2 (78.0–82.4)					3,147	73.2 (69.8–76.6)	882	26.8 (23.4–30.2)		
Partner age (years)														
<=29	298	20.5 (17.1–23.8)	1,091	79.5 (76.2–82.9)	1.65 (1.14–2.37)	0.006	2.27 (1.56–3.30)	<0.0001	1,062	71.7 (66.6–76.8)	327	28.3 (23.2–33.4)	1.16 (0.81–1.66)	0.425
30–49	481	21.8 (19.1–24.6)	1,587	78.2 (75.4–80.9)	1.75 (1.26–2.44)	0.001	2.20 (1.58–3.06)	<0.0001	1,630	73.8 (70.1–77.5)	438	26.2 (22.5–29.9)	1.07 (0.78–1.47)	0.674
50+	63	12.4 (8.4–16.5)	372	87.6 (83.5–91.6)	Reference		Reference		353	75.5 (68.0–83.1)	82	24.5 (16.9–32.0)	Reference	
Partner race/ ethnicity														
Black, non-Hispanic	158	11.7 (9.7–13.8)	1,070	88.3 (86.2–90.3)	0.44 (0.34–0.55)	<0.0001	0.41 (0.33–0.52)	<0.0001	874	68.5 (63.0–74.0)	354	31.5 (26.0–37.0)	1.37 (1.10–1.71)	0.005
Hispanic	228	18.7 (15.0–22.3)	942	81.3 (77.7–85.0)	0.69 (0.56–0.86)	0.001	0.67 (0.54–0.83)	0.0003	927	72.9 (68.1–77.7)	243	27.1 (22.3–31.9)	1.18 (0.91–1.53)	0.219
White, non-Hispanic	398	26.9 (23.2–30.7)	966	73.1 (69.3–76.8)	Reference		Reference		1,131	77.0 (72.0–82.0)	233	23.0 (18.0–28.0)	Reference	
Other [c]	49	28.0 (19.8–36.1)	119	72.0 (63.9–80.2)	1.04 (0.76–1.41)	0.810	0.97 (0.69–1.35)	0.839	140	78.0 (65.8–90.1)	28	22.0 (9.9–34.2)	0.96 (0.55–1.65)	0.876
Level of commitment														

Characteristics	Partnerships with PrEP use (n=845)		Partnerships with no PrEP use (n=3184)		Prevalence Ratio (95% CI)	T-test P-value	Adjusted Prevalence Ratio (95% CI)	T-test P-value	Partnerships with PrEP use or sustained viral suppression (n=3147)		Partnerships with no PrEP use and without sustained viral suppression (n=882)		Prevalence Ratio (95% CI)	T-test P-value
	n[a]	Row % (95% CI)[b]	n[a]	Row % (95% CI)[b]					n[a]	Row % (95% CI)[b]	n[a]	Row % (95% CI)[b]		
Not at all	464	17.0 (14.6–19.3)	2159	83.0 (80.7–85.4)	Reference		Reference		2032	72.1 (68.0–76.3)	591	27.9 (23.7–32.0)	Reference	
Somewhat	184	25.9 (22.1–29.7)	471	74.1 (70.3–77.9)	1.53 (1.29–1.81)	<0.0001	1.56 (1.33–1.85)	<0.0001	520	74.0 (68.9–79.0)	135	26.0 (21.0–31.1)	0.94 (0.78–1.12)	0.453
Very/Above and beyond anyone else	197	25.8 (20.7–30.9)	510	74.2 (69.1–79.3)	1.52 (1.23–1.89)	0.0002	1.54 (1.25–1.91)	0.0001	561	76.6 (72.1–81.2)	146	23.4 (18.8–27.9)	0.84 (0.67–1.05)	0.127
Sustained viral suppression[d]														
Yes	624	20.3 (17.6–23.0)	2,302	79.7 (77.0–82.4)	1.09 (0.83–1.41)	0.540								
No	221	18.7 (14.6–22.9)	882	81.3 (77.1–85.4)	Reference									

Notes: HIV, human immunodeficiency virus; PrEP, preexposure prophylaxis; CI, confidence interval; partner characteristics were reported by the HIV-positive person.

[a] Numbers are unweighted

[b] Percentages and corresponding CIs are weighted percentages

[c] Includes American Indian/Alaska Native, Asian, Native Hawaiian/Other Pacific Islander, or multiple races

[d] All viral loads in past 12 months documented in medical record as undetectable or <= 200 copies/mL